

REMARKS

Claims 20-37, 39-46 and 48-57 have been rejected. Claims 1-19, 38, 47, and 50 have been cancelled. Claims 20, 48, 51 and 52 have been amended. No claims have been cancelled or added. Thus, claims 20-37, 39-46 and 48-49 and 51-57 remain. Reconsideration of the application as amended herein is respectfully requested.

Comments

The Office Action comments that the objections to claims 20 and 48 have been overcome. No further comment is deemed necessary. The Office Action also indicates that the art rejection over Fletcher in view of Shinohara and the art rejection over Few in view of JP '101 are moot in view the amendments made to claims 20 and 48. No further comment is deemed necessary.

Election/Restrictions

The Office Action notes that claims 1, 3-19 and 47 have been withdrawn from consideration. No further comment is deemed necessary other than to state that Applicant has now cancelled these claims without acquiescence in the election/restriction and without prejudice to renew in a continuation or divisional application.

Rejections Under 35 U.S.C. § 112

The Office Action has rejected claims 20-37 39-46 and 48-57 under 35 U.S.C. § 112, first paragraph, as allegedly failing to comply with the written description requirement. In particular, the Office Action states that the rejected claims contain subject matter which was allegedly not described in the specification in such a way to convey to one skilled in the relevant art that the

inventor(s), at the time the application was filed, has possession of the claimed invention.

Applicant respectfully traverses this rejection.

With respect to claim 20, the Office Action states that the range “at least partly bounds” is not supported by the specification. Applicant respectfully submits that claim 20 (and claims 21-37 and 39-46 that depend therefrom) are supported by the specification. Applicant points the Examiner to paragraph 31 of the specification, which states:

[0031] The emitter acts like a spark plug and may be constructed to be on the same surface as the collector, to be the same physical device as the collector, or to be on the same surface of a contoured surface including the collector. The fuel may be mixed with oxidizer or may be separately injected. The emitter may be insulated from the collector and may be on separate structures distinct from the collector. *The reaction region may be completely enclosed or partly enclosed by collectors or it may be open to reactant flow. The reaction region may include the surface of the collector itself.* The reactants may adsorb or partially adsorb on the collector and on the emitter. More than one type of fuel or oxidizer may be provided, e.g., one type of fuel mixed with one type of the oxidizer and the other fuel, another oxidizer or mixture separately injected. [Emphasis Added]

While Applicant respectfully submits that the “phrase “at least partly bounds” is supported by paragraph 31, Applicant has amended claim 20 to use the same language as is present in the specification. As amended, claim 20 now states that the collector comprises “at least a conductor whose first surface is in contact with a reaction region that is completely or partly enclosed by the first surface. Applicant respectfully submits that this amended is supported by, at a minimum, paragraph 31 of the specification.

The Office Action also argues that the requirement that the “electrical energy being greater than energy input to the emitter to emit hot electrons that initiate the chemical reactions” that is recited in claims 20 and 48 is not supported by the original specification. While disagreeing, Applicant has amended claims 20 and 48 to remove this limitation. Applicant notes that claim 20 has been amended to recite a “gas-phase-reactant-pulsed electric generator”, which Applicant respectfully submits makes it clear that the apparatus of claim 20 generates electricity. The term “gas-phase-reactant-pulsed electric generator” is supported throughout the

specification, with particular reference to paragraphs 45, 47-50, 109 and 111. Similarly, claim 48 recites a “device for extracting a net excess of useful work”, which also makes clear that the apparatus creates more “useful work” than it consumes.

The Office Action argues that claim 50 is not supported by the specification. While disagreeing, Applicant has cancelled claim 50 without prejudice to renew in a continuation application, thereby rendering this rejection moot.

The Office Action argues that the “pulse of energy” and the “pulse of chemical reactants” recited in claim 51 (previously labeled claim 52) are not supported by the specification. While disagreeing with the Office Action, Applicant has amended 51 (previously labeled claim 52) to remove recitation of “pulse of chemical reactants”. With respect to the recitation of “pulse of energy”, Applicant respectfully refers the Examiner to paragraphs 36 and 77 of the application, which state:

[0036] In one embodiment, a **pulse of energy** such as hot electrons, photons, or phonons, are created and injected into a thin reaction surface. The pulses may originate as optical or electrical pulses. The duration of the pulse is, e.g., shorter than the time it takes for phonons in the surface in contact with the reactants to equilibrate with the substrate. [Emphasis Added]

[0077] A pulsed hot electron injector **may deposit the energy** in a time that is so short that the hot electron energy deposits entirely in a nanometers thin reaction surface, heating it to effective temperatures of thousands of degrees Kelvin. This short duration, high intensity **pulse of energy** switches the reaction surface from an inactive or non-catalyst state to a highly reactive catalyst state. [Emphasis Added]

As plainly seen in these paragraphs, the specification unambiguously teaches that the emitter is energized by pulses of energy.

The Office Action also argues that the plural term “monopropellants” found in claim 51 is not supported by the specification. Applicant has amended claim 51 to replace the plural “monopropellants” with the singular “monopropellant”.

With respect to claim 52 (previously labeled claim 52), the Office Action states that the claim term “one or more” found on line 1 of the claim is not supported by the specification.

While disagreeing, Applicant has amended claim 52 (previously labeled claim 53) to remove this recitation. The Office Action also argues that the generic “oxides” and the plural “metals” is not supported by the specification. While disagreeing, Applicant has amended claim 52 (previously labeled claim 53) to remove these recitations.

The Office Action has rejected claims 20-37, 39-46 and 48-57 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards has the invention. Applicant respectfully traverses this rejection. The Office Action states that the claim term “can be” found in claims 20 and 48 is indefinite and can be replaced with the term “is”. Applicant has amended these claims accordingly, thereby overcoming these rejections.

Terminal Disclaimer

The Office Action has rejected claims 20-37, 39-46 and 48-57 under the judicially created doctrine of obviousness-type double patenting. Applicant submits herewith a Terminal Disclaimer, which should overcome this rejection. Note that this disclaimer does not disclaim any patent term based on U.S. Patent Application Serial No. 10/185,086.

Conclusion

Based on the foregoing, Applicant respectfully submits that this application is in condition for allowance, which is respectfully requested. This Amendment and Response is filed within two months of the mailing date of the Office Action. Thus, Applicant respectfully requests either a Notice of Allowance or an Advisory Action. Of course, should the Examiner have any questions, the Examiner is invited to telephone the undersigned.

Respectfully submitted,

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